NEW MEXICO ENVIRONMENT DEPARTMENT GROUND WATER QUALITY BUREAU

UNDERGROUND INJECTION CONTROL

GENERAL DISCHARGE PERMIT

Certified Mail- Return Receipt Requested

Facility Name:	**Santa Fe County Judicial Complex State Lead Site**
Facility Location:	**327 Sandoval Street, Santa Fe, New Mexico** **Lat: 35.684119° Long: -105.942590°** **Santa Fe County**
Legally Responsible Party:	**NMED Petroleum Storage Tank Bureau** **2905 Rodeo Park Drive East, Building 1** **Santa Fe, New Mexico, 87505** **Tel (505)-476-4397**
	Point of Contact: Mike McVey, P.G. **EA Engineering, 320 Gold Avenue Suite 1300** **Albuquerque, NM 87102** **Tel (505)-224-9013 x 1530** **mmcvey@eaest.com**
Remediation Oversight Agency Contact:	**NMED PSTB** **Attn: Susan von Gonten** **(505) 372-8153**
Remediation or Injection Plan Identification:	**Santa Fe County Judicial Complex Final Remediation Plan**
Permitting Action:	**New DP-1918**
PPS Contact	**Jason Herman** **(575) 649-3871**
EFFECTIVE DATE:	**TERM ENDS:**

Michelle Hunter
Chief, Ground Water Quality Bureau
[Subsection H of 20.6.2.3109 NMAC,
NMSA 1978, § 74-6-5.I]

Version updated December 5, 2018

I. UIC GENERAL DISCHARGE PERMIT

The New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) issues this Underground Injection Control General Discharge Permit (UIC Permit) for the subsurface emplacement of additive fluids through a Class V UIC injection well for the purpose of facilitating vadose zone or groundwater remediation. The GWQB issues this UIC Permit to the New Mexio Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) (Permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Ground and Surface Water Protection Regulations, 20.6.2 NMAC.

In issuing this UIC Permit, the GWQB has determined that the requirements of Subsection C of 20.6.2.3109 NMAC have been met. The activities authorized by this UIC Permit are principally governed by the Santa Fe County Judicial Complex Final Remediation Plan (Injection Plan), under the authority of NMAC 20.5.119, Corrective Action for Storage Tank Systems Containing Petroleum Products, with oversight by the the New Mexico Environment Department Petroleum Storage Tank Bureau Remedial Action Program. Compliance with this UIC Permit requires compliance with the terms, requirements, and conditions of the Injection Plan. The term of this UIC Permit shall be no longer than five years from the effective date of this UIC Permit.

The injection activities, the location of the injection site, the type of injection and quantities of additives being used are briefly described as follows:

Injection Activities (summary: including injection well type, number of wells, and injection frequency)

Copy of the Injection Plan Attached (required): ☒
Summary of Injection Plan: Soil and groundwater impacted by the past releases of gasoline from underground storage tanks in the area will be remediated by injecting Regenesis PetroFix, a micro-scale activated carbon amended with electron acceptors. Boreholes will be drilled and amendments injected using an injection tool isolated with packers.

Injection Site Information

Depth to most shallow groundwater (required): 20 ft

Existing concentration of total dissolved solids (TDS) in groundwater (required): Average 1,300 mg/L and high of 4,500 mg/L based on average specific conductance of 2,000 uS/cm and high of 7,000 uS/cm. mg/L

Location (required): Area bound by De Vargas Street to the North, Sandoval Street to the West, Galisteo Street and Cerillos Road to the east, and Montezuma Avenue to the South. Please see attached map.

County (required): Santa Fe County

Latitude: 35.684119°

Longitude: -105.942590°

Map Showing Area of Injection Sites Attached (required): ☒

Additives Being Used (including volumes, manufacturer, and mixing ratios)

Regensis PetroFix - a micron-scale activated carbon with alternative electron acceptors will be injected to remediate soil and groundwater impacted by the release of gasoline.

Injection quantities:
Approximately 80,000 lbs of Regensis PetroFix.
Approximately 4,000 lbs of electron acceptors.
Approximately 220,000 gallons of potable water.
Approximately 80-100 injection points.

Anticipated Precipitation, Dissolution, Adsorption, and Desorption Products

Activated carbon will coat the soil aquifer matrix and absorb contamination that will degrade by microbial population through time. In-situ biodegradation will be enhanced by the electron acceptors that will be used up by the microbial population to degrade gasoline constituents.

Public Notice Posting Locations

2 inch by 3 inch Newspaper Ad required for Renewal applications.
Newspaper: NA

3 inch by 4 inch Newspaper Ad required for New, Modification, and Renewal/Modification applications.
Newspaper: The Santa Fe New Mexican

2 feet by 3 feet sign posted for 30 days in a location conspicuous to the public at or near the facility required for New, Modification, and Renewal/Modification applications.
Sign Location: Santa Fe County Court House

8.5 inch by 11 inch or larger posted off-site location conspicuous to the public (e.g. public library). Required for New, Modification, and Renewal/Modification applications.

Flyer Location: Santa Fe Public Library, 145 Washington Avenue, Santa Fe, NM

This UIC Permit consists of the complete and accurate completion of this UIC Permit form as determined by the GWQB.
Issuance of this UIC Permit does not relieve the Permittee of the responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

Signatures

Signature must be that of the person listed as the legally responsible party on this application.

I, the applicant, attest under penalty of law to the truth of the information and supporting documentation contained in this application for an Underground Injection Control General Discharge Permit.

Applicant's Signature

Signature: _____ Date: _____

Printed Name: Lorena Goerger Title: Program Manager

II. FINDINGS

In issuing this UIC Permit, GWQB finds:

1. The Permittee is injecting fluids so that such injections will move directly or indirectly into groundwater within the meaning of Section 20.6.2.3104 NMAC.
2. The Permittee is injecting fluids so that such fluids will move into groundwater of the State of New Mexico which has an existing concentration of 10,000 mg/L or less of TDS within the meaning of Subsection A of 20.6.2.3101 NMAC.
3. The Permittee is using a Class V UIC well as described in 20.6.2.5002(B)(5)(d)(ii) NMAC for in situ groundwater remediation by injecting a fluid that facilitates vadose zone or groundwater remediation.
4. The Permittee is injecting fluids into groundwater in order to achieve the remediation goals identified in the Injection Plan.

III. AUTHORIZATION TO DISCHARGE

The Permittee is authorized to inject chemical additives into groundwater in accordance with this UIC Permit and the Injection Plan under the oversight of the New Mexico Environment Department Petroleum Storage Tank Bureau Remedial Action Program.

[20.6.2.3104 NMAC, Subsection C of 20.6.2.3106 NMAC, Subsection C of 20.6.2.3109 NMAC]

IV. CONDITIONS

The conditions of this UIC Permit shall be complied with by the Permittee and are enforceable by GWQB.

1. The Permittee shall perform remediation activities in accordance with the Injection Plan and shall notify GWQB of any changes prior to making them.

   [20.6.2.3107 NMAC]

2. The Permittee shall monitor the injection activities and their effects on groundwater quality as required by the Injection Plan and shall provide GWQB with electronic copies of the required reporting and any pertinent documentation of activities at the site.

   [20.6.2.3107.A NMAC, 20.6.2.3109.A NMAC]

3. If the GWQB or the Permittee identifies any failure of the Injection Plan or this UIC Permit to comply with 20.6.2 NMAC not specifically noted herein, GWQB may require the Permittee to submit a corrective action plan and a schedule for completion of corrective actions to address the failure.

   Additionally, the GWQB may require the Permittee to submit a proposed modification to the Injection Plan, this UIC Permit, or both.

   [20.6.2.3107.A NMAC, 20.6.2.3109.E NMAC]

4. ADDITIONAL MONITORING REQUIREMENTS – After injection, groundwater quality monitoring will be performed quarterly under the supervision and directive of the NMED PSTB.

5. TERMINATION – Within 30 days of completion of activities authorized by this UIC Permit the Permittee shall submit a closure report and a request to terminate the UIC Permit to the GWQB for its approval. The closure report shall identify how the injection well(s) was (were) closed in accordance with the Injection Plan. The Permittee shall provide the New Mexico Environment Department Petroleum Storage Tank Bureau Remedial Action Program with a copy of this closure report.

   [20.6.2.5005 NMAC, 19.27.4 NMAC]

6. INSPECTION and ENTRY – The Permittee shall allow a representative of the NMED to inspect the facility and its operations subject to this UIC Permit and the WQCC regulations. The GWQB representative may, upon presentation of proper credentials, enter at reasonable times upon or through any premises in which a water contaminant source is located or in which are located any records required to be maintained by regulations of the federal government or the WQCC. The Permittee shall allow the GWQB representative to have access to, and reproduce for their use, any copy of the records, and to perform assessments, sampling or monitoring during an inspection for the purpose of evaluating compliance with this UIC Permit and the WQCC regulations.

   Nothing in this UIC Permit shall be construed as limiting in any way the inspection and entry authority of GWQB under the WQA, the WQCC Regulations, or any other local, state, or federal regulations.

   [20.6.2.3107.D NMAC, NMSA 1978, §§ 74-6-9.B and 74-6-9.E]

7. MODIFICATIONS and/or AMENDMENTS – In the event the Permittee proposes a change to the injection plan that would result in a change in the volume injected; the location of the injections; or the concentration of the additives being injected by the facility, the Permittee shall notify GWQB prior to implementing such changes. The Permittee shall obtain approval (which may require modification of this UIC Permit) by GWQB prior to implementing such changes.

   [20.6.2.3107.C NMAC, 20.6.2.3109.E and G NMAC]

8. COMPLIANCE with OTHER LAWS – Nothing in this UIC Permit shall be construed in any way as relieving the Permittee of the obligation to comply with all applicable federal, state, and local laws, regulations, permits, or orders.

   [NMSA 1978, § 74-6-5.L]

9. PERMIT FEES – Payment of permit fees is due at the time of UIC Permit approval. Permit fees shall be paid in a single payment remitted to GWQB no later than 30 days after the UIC Permit effective date.

   Permit fees are associated with issuance of this UIC Permit. Nothing in this UIC Permit shall be construed as relieving the Permittee of the obligation to pay all permit fees assessed by GWQB. A Permittee that ceases injecting or does not commence injecting during the term of the UIC Permit shall pay all permit fees assessed by GWQB. An approved UIC Permit shall be suspended or terminated if the facility fails to remit a payment by its due date.

   [20.6.2.3114.F NMAC, NMSA 1978, § 74-6-5.K]

INJECTION PLAN

SANTA FE COUNTY JUDICIAL COMPLEX SITE, SANTA FE, NEW MEXICO

EA Engineering, Science, and Technology, Inc. PBC (EA) has been selected to prepare a Final Remediation Plan (FRP) and to inject PetroFix™ amendment to address groundwater impacted by past release of gasoline contamination at the Santa Fe County Judicial Complex (SFCJC) State Lead Site in Santa Fe, New Mexico. Work is been performed under Contract number 19-667-3200-0007 and in accordance with the New Mexico Petroleum Storage Tank Regulations, New Mexico Administrative Code (NMAC) 20.5.119.1923, and work plan identification (WPID) number 4071, approved by the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) on June 27, 2019.

Regenesis PetroFix™ amendment will be injected to mitigate elevated groundwater concentrations. PetroFix™ is a water-based suspension of micron-scale (1-2µm) activated carbon and electron acceptors (slow and quick-release nutrients). As PetroFix™ distributes in the subsurface, it coats the soils with micron-scale activated carbon. Petroleum hydrocarbons rapidly sorb to the activated carbon, removing them from the groundwater. Electron acceptors in the PetroFix™ enhance natural biological degradation of the sorbed contamination. Biological degradation rejuvenates sorption sites to allow further influx sorption, providing a long-term treatment.

Amendments will be injected into open borehole using tool isolated with packers at the locations shown on the attached drawings. Injection intervals vary by injection area from 20-25 feet below ground surface (bgs) to 35-40 feet bgs in De Vargas, SFCJC, and Capital 66 Plumes and from 32 to 62 feet bgs at the Design Center Plume. After injection, borehole will be plugged with neat cement-bentonite or bentonite.

Petrofix™ will be augmented with alternative electron acceptors to enhance in-situ biodegradation of COCs.

- At De Vargas and Capital 66, a mix of potassium and ammonium sulfate will be utilized, as nitrate concentrations in these areas were elevated in some wells and relative concentrations of COCs are low.

- At SFCJC and Design Center, a mix of standard sodium nitrate and ammonium sulfate will be added. In these areas, nitrate was utilized during the Microcosm study and relative concentrations of COCs are high.

- Amendments will be mixed at a standard Regenesis ratio of 0.05 pounds of amendment mixture per 1 pound of Petrofix™.

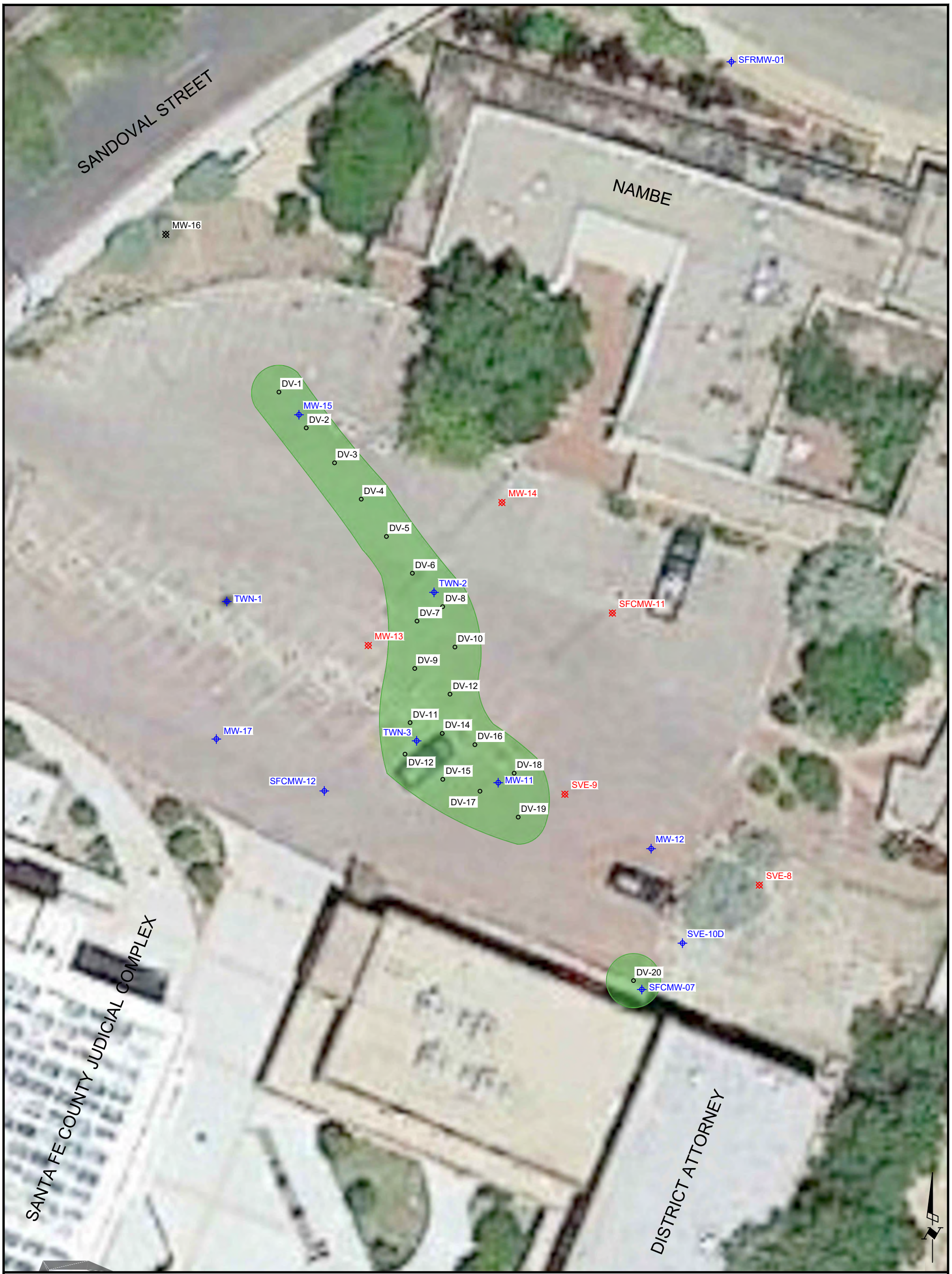
After the injection, groundwater monitoring will be conducted on a quarterly basis under direction and supervision of the NMED PSTB. NMED PSTB will receive and review quarterly reports to access progress of remediation and groundwater quality.

PETROFIX APPLICATION RATES
SANTA FE COUNTY JUDICIAL COMPLEX, SANTA FE, NEW MEXICO

Plume	Area	From	To	Thickness	Volume	Dose	PetroFix Total Mass	Number of Points	Application Rate PetroFix	Application Rate PetroFix	Total Water Volume	Application Rate Water	Application Rate Water	Electron Acceptor	Electron Acceptor Dose, Total, Bulk	Electron Acceptor Dose, Bulk, Per Point
	SF	ft bgs	ft bgs	Feet	CY	lb/cy	lbs		lb/point	lb/ft	gal	gal/point	gal/ft			
De Vargas	2,200	25	40	15	1222	5.56	6,800	20	340	22.7	24,686	1,234	82	Sulfate	340	17
Capital 66 - CMW-1	500	20	25	5	93	8.64	800	3	267	53.3	1,870	623	125	Sulfate	40	13
Capital 66 - CMW-3R	700	20	32	12	311	5.14	1,600	4	400	33.3	6,284	1,571	131	Sulfate	80	20
Capital 66 - CMW-4	200	20	32	12	89	13.5	1,200	2	600	50.0	1,795	898	75	Sulfate	60	30
Design Center	5,000	32	62	30	5,556	8.86	49,220	13	3,786	126	112,208	8,631	288	Nitrate, Sulfate	2,461	189
SFCJC - Hot Spot	1,000	28	40	12	444	7.2	3,200	5	640	53	8,977	1,795	150	Nitrate, Sulfate	160	32
SFCJC - Plume	7,000	28	40	12	3,111	4.4	13,690	34	403	34	62,836	1,848	154	Nitrate, Sulfate	685	20
Total	**16,600**				**10,826**		**76,510**	**81**			**218,656**				**3,826**	

Inputs		**Notes:**		**Nitrate/Sulfate Electron Acceptor Blend:**		**Nitrate Free Electron Acceptor Blend:**	
Target Effective Pore Volume	50%	CY	cubic foot	CAS#	Chemical	CAS#	Chemical
Effective Porosity	20%	ft	foot	7631-99-4	Sodium Nitrate, 50% by weight	778-80-5	Potassium Sulfate, 50% by weight
Cubic feee in a cubic yard	27	gal	gallon	7783-20-2	Ammonium Sulfate, 50% by weight	7783-20-2	Ammonium Sulfate, 50% by weight
Gallons in a cubic yard	201.974	LB	pound				
Electron Acceptor Dose	0.05 lb per pound of Petrofix	SF	square foot				

P:\Active Projects\PSTB State lead\Santa Fe County Judicial Complex_SFCJC\Reports\4071-1 CRP\Figures



LEGEND:

- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- DV-1 — INJECTION POINTS
- TARGET TREATMENT AREA

SCALE IN FEET: 20 10 0 20

SANTA FE COUNTY JUDICIAL COMPLEX
SANTA FE, NEW MEXICO

DRAWING C-1
DE VARGAS AREA PLUMES AND INJECTION POINTS

PROJECT #:	6347001	PROJECT PHASE:	01	PROJECT MANAGER:	MM

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. PBC

P:\Active Projects\PSTB State lead\Santa Fe County Judicial Complex_SFCJC\Reports\4071-1 CRP\Figures

FCMW-01
MW-5
MW-6
SVE-5
CMW-5
CMW-6
CMW-4
CP-8
CP-9
SVE-4
CP-7
CP-5
CMW-3R
CP-7
CP-4
CP-1
CMW-1
CP-2
CP-3
CMW-2
GROUNDWATER DIVIDE
CAPITOL 66
UST SITE
GALISTEO STREET

LEGEND:

- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- CP-1 INJECTION POINT
- TARGET TREATMENT AREA

SCALE IN FEET 20 10 0 20

SANTA FE COUNTY JUDICIAL COMPLEX
SANTA FE, NEW MEXICO

DRAWING C-2
CAPITOL 66 AREA INJECTION POINTS

PROJECT #:	6347001	PROJECT PHASE:	01	PROJECT MANAGER:	MM

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. PBC

P:\Marketing-Proposals\Santa Fe Judicial Complex - 2018-Nov\Figures

LEGEND:

- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- DC-1 INJECTION POINT
- TARGET TREATMENT AREA

SCALE IN FEET 20 10 0 20

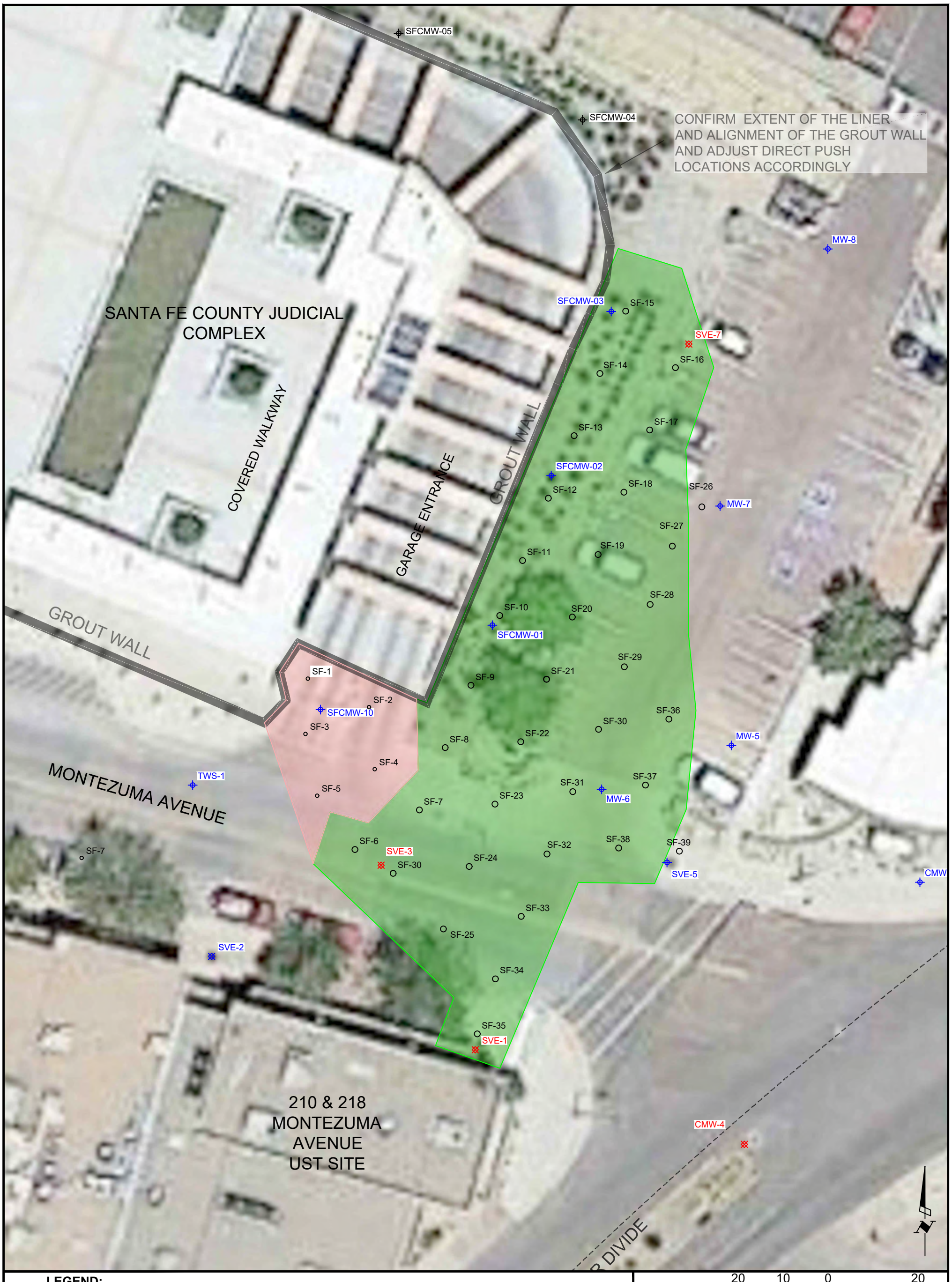
SANTA FE COUNTY JUDICIAL COMPLEX
SANTA FE, NEW MEXICO

DRAWING C-3
DESIGN CENTER AREA INJECTION POINTS

PROJECT #:	PROPOSAL	PROJECT PHASE: __	PROJECT MANAGER: ___

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. PBC

P:\Active Projects\PSTB State lead\Santa Fe County Judicial Complex_SFCJC\Reports\4071-1 CRP\Figures



LEGEND:

- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- SF-1 INJECTION POINTS
- HOT SPOT TARGET TREATMENT AREA
- PLUME TARGET TREATMENT AREA

SCALE IN FEET 20 10 0 20

SANTA FE COUNTY JUDICIAL COMPLEX
SANTA FE, NEW MEXICO

DRAWING C-4. SANTA FE COUNTY JUDICIAL COMPLEX AREA INJECTION POINTS

PROJECT #:	6347001	PROJECT PHASE:	01	PROJECT MANAGER:	MM

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. PBC